

WHAT IS CLAIMED IS:

1. An electric toothbrush comprising a brush casing, a toothbrush shaft adapted to rotate in said brush casing, and a bristle carrier disc which is connected to one end of said toothbrush shaft by a gear arrangement that converts one-way rotary motion of the toothbrush shaft into a reciprocating rotary motion of the bristle carrier disc; said bristle carrier disc comprising a pair of bearing surfaces and at least one gap therebetween; said gear arrangement comprising an eccentric mounted at said one end of said toothbrush shaft, said eccentric engaging in said gap in the bristle carrier disc, and wherein the eccentric is formed by at least one cam disc which bridges the gap in every angular position.

2. An electric toothbrush according to Claim 1, wherein the two bearing surfaces extend parallel with each other and bear against the eccentric and the eccentric is formed as a non-circular, approximately elliptical cam disc.

3. An electric toothbrush according to Claim 1, wherein the cam disc comprises a lateral face and the bearing surfaces present a convex curvature to the lateral face of the cam disc.

4. An electric toothbrush according to Claim 1, wherein the gap is formed between two follower pins projecting from a lower end face of the bristle carrier disc and the follower pins comprise the bearing surfaces.

5. An electric toothbrush according to Claim 1, further comprising a rotating collar mounted on the toothbrush shaft in the vicinity of the cam disc, said collar fitting into a bearing shell in the brush casing.

6. An electric toothbrush according to Claim 5, wherein a section of the brush casing is formed by a lid which is removably inserted in an opening in the brush casing and which forms part of the bearing shell.

7. An electric toothbrush according to Claim 6, wherein the lid also forms a section of a holder for the bristle carrier disc.

8. An electric toothbrush according to at Claim 4, wherein the cam disc has a surrounding helical groove extending obliquely with respect to the cam disc, with a groove bottom which forms the eccentric and bridges the gap between the two follower pins.

9. An electric toothbrush according to Claim 1, wherein the bristle carrier disc has two gaps disposed symmetrically and diametrically with respect to its axis of rotation and the toothbrush shaft accordingly has two cam discs oriented in opposite directions and each engaging in one of the gaps.

10. An electric toothbrush according to Claim 9, wherein said casing comprises a barrel at one end thereof and the bristle carrier disc rotatably seated in the barrel by its lateral cylindrical face and the toothbrush shaft passes

underneath the bristle carrier disc to a bearing in the brush head on the same side as the free end of the brush casing.

11. An electric toothbrush according to Claim 9, further comprising a further bristle carrier disc rotatably mounted concentrically inside the bristle carrier disc, said further bristle carrier disc comprising an extension with two opposing gaps, and a pair of cam discs mounted on said toothbrush shaft, each of said pair of cam discs engages one of said opposing gaps.